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46th Energy Working Group Meeting
Da Nang, Viet Nam
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**ASIA PACIFIC ENERGY RESEARCH
CENTRE (APERC)**

REPORT ON APERC ACTIVITIES

**THE 46TH MEETING OF
THE APEC ENERGY WORKING GROUP (EWG-46)
DA NANG, VIET NAM
19-20 NOVEMBER 2013**

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I PROGRESS IN ON-GOING WORK

A. APERC ENERGY DEMAND AND SUPPLY OUTLOOK 5th EDITION

BACKGROUND

APERC has previously produced four *APEC Energy Demand and Supply Outlooks*, and the 5th Edition was published in February of this year.

The *Outlook* provides a long term (2010-2035) perspective on APEC energy demand and supply. It consists of two volumes. Volume 1 discusses the APEC- wide situation sector-by-sector. Volume 2 has sections discussing each APEC economy.

OBJECTIVES

The key objectives of the *APEC Energy Demand and Supply Outlook* are to help facilitate APEC cooperation by providing policymakers with;

- a useful reference work on energy in the APEC region,
- a statistically-supported review of the challenges and opportunities facing the APEC economies individually and as a region,
- a source of ideas and approaches for dealing with these energy challenges and capitalizing on energy opportunities.

PROGRESS

The *Outlook 5th Edition* was published in February, 2013.

Three sets of alternative scenarios to business-as-usual were developed and are included in the *Outlook 5th Edition*: a High Gas Scenario, Alternative Urban Development Scenarios, and Virtual Clean Car Race Scenarios (which look at the benefits of alternative vehicle technologies).

In addition to PDF versions of the two printed volumes, detailed Excel tables of the results of each of the model scenarios are available for downloading from the APERC website.

In order to help publicize the *Outlook 5th Edition*, a media release was prepared in cooperation with the APEC Secretariat and is available on the APEC website. A press conference was held in Tokyo. APERC researchers organized workshops on the *Outlook 5th Edition* in six APEC economies (Malaysia, Singapore, Indonesia, Philippines, Peru, and Chile), which were well-attended by high-level government officials. APERC also gave a workshop on the *Outlook 5th Edition* for a Thai Ministry of Energy study mission to Japan. Four APERC researchers made presentations at the International Association for Energy Economics Annual International Conference in Daegu, Korea in June 2013.

MILESTONE

APERC is starting work on the *Outlook 6th Edition*. Work is underway on new models and topical studies for the *Outlook 6th Edition*.

B. APEC ENERGY OVERVIEW 2011

BACKGROUND

At the EGEDA 11th meeting held in March 2000, the project *APEC Energy Overview* was proposed by Australia, and it was approved at the EWG19 meeting in April 2000.

The *APEC Energy Overview* is an annual publication, which contains updated energy demand/supply data as well as a description of energy policies and notable energy developments in energy efficiency, infrastructure development, upstream development, energy source diversification, regulatory reform and environmental protection.

Energy demand/supply data are drawn from the APEC Energy Database. APERC is responsible for coordinating information gathered from member economies and preparing a draft *Overview* for EGEDA review. The *Overview* is published on both the APEC and APERC websites.

Since the inaugural issue in 2001, eleven editions have been issued up to 2011.

OBJECTIVE

The objective of the *APEC Energy Overview* is to share information on government energy policies of member economies, and to provide useful information and insights to policy makers in the region.

PROGRESS

APERC completed the *APEC Energy Overview 2012* in June, which is now available at http://aperc.iecej.or.jp/file/2013/6/28/APEC_Energy_Overview_2012.pdf

APERC started the work on the *APEC Energy Overview 2013* in August 2013.

MILESTONE

APEC Energy Overview 2013 will be published in January/February 2014.

C. PEER REVIEW ON ENERGY EFFICIENCY (PREE)

BACKGROUND

The improvement of energy efficiency offers many cost-effective opportunities to achieve energy security, improve business productivity and mitigate greenhouse gas emissions. In the Sydney Declaration of September 2007, APEC Leaders agreed to start a peer review of energy efficiency policies through the voluntary APEC Energy Peer Review Mechanism.

At the EWG 35 meeting (Iquitos, March 2008), the APEC Peer Review on Energy Efficiency (PREE) was proposed by Japan as a concrete program and endorsed by EWG members.

Two activities are undertaken as part of the PREE, namely:

- (1) Peer Review of volunteer member economies on the progress towards their goals in energy efficiency improvement (“Peer Review of volunteer member economies”)
- (2) Compendium of energy efficiency policies/measures and action plans of APEC member economies under a common format (“Compendium”)

(1) PEER REVIEW

OBJECTIVES

The objectives of the APEC Peer Review of Energy Efficiency are to:

- share information on energy efficiency performance as well as policies and measures for improving energy efficiency among member economies,
- provide opportunities for learning from other member economies' experiences and for broadening communication among energy efficiency policy experts,
- explore how energy efficiency overall/sectoral goals and action plans could be effectively formulated in each APEC economy under review, taking into account the diversity of possible strategies to be used,
- monitor progress toward attaining Energy Efficiency goals on an overall and/or sectoral basis and toward implementing action plans,
- provide recommendations on how implementation of action plans could be improved with a view to achieving energy efficiency goals.

PROGRESS

Guidelines for the Peer Review were endorsed by EWG in late 2008.

The inaugural Peer Review for New Zealand was carried out during the period of 23-27 February 2009, with a review team comprised of experts from member economies and from APERC. This was followed by Peer Review for Chile during the period of 16-20 March 2009.

The Draft Review Reports of PREE for New Zealand and Chile were discussed and endorsed by EWG members at the EWG37 meeting in Santiago in April 2009.

The third Peer Review for Vietnam was conducted on 8-12 June 2009. The draft Review Report of PREE for Vietnam was discussed and endorsed by EWG members at the EWG38 meeting in Bali in November 2009.

The fourth Peer Review for Thailand was carried out on 9-13 November 2009. The draft Review Report of PREE for Thailand was discussed and endorsed by EWG members at the EWG39 meeting in Tokyo in March 2010.

The fifth Peer Review for Chinese Taipei was carried out on 23-27 August 2010. The Draft Review Report of PREE for Chinese Taipei was discussed and endorsed by EWG members at the EWG40 meeting in Brunei-Darussalam in November 2010.

The sixth Peer Review for Peru was carried out on 8-12 November 2010. The seventh Peer Review for Malaysia was carried out on 26 November-3 December 2010. The Draft Review Reports of PREE for Peru and Malaysia were discussed and endorsed by EWG members at EWG41.

The eighth PREE for Indonesia was carried out on 10-14 October 2011. The Draft Review Report of PREE for Indonesia was discussed and endorsed by EWG members at the EWG 43 meeting.

The ninth PREE for the Philippines was carried out on 6-10 February 2012. The Draft Review Report of PREE for the Philippines was discussed and endorsed by EWG members at the EWG 44 meeting.

The first Follow-up PREE activity, a training workshop on analytical methods to monitor the effectiveness of implementing energy efficiency measures, was carried out in Viet Nam on 27 February-2 March in 2012. The Summary Report was submitted to the EWG 44 meeting.

The review team visit for the tenth PREE in Brunei Darussalam was carried out on 11-15 June 2013. The Draft Review Report of PREE for Brunei Darussalam will be discussed and endorsed by EWG members at the EWG 46 meeting.

MILESTONE

The second Follow-up PREE in Thailand for the transportation sector will be carried out in late January or early February in 2014.

(2) COMPENDIUM

OBJECTIVES

The objective of the Compendium is to serve as a basis for information sharing on energy efficiency policies and measures, reflecting the diversity of approaches that could be adopted by member economies.

PROGRESS

APERC presented the draft common format for the Compendium at the APERC workshop and at EWG 36 in Manila in December 2008 where it was discussed and endorsed

APERC published the first Compendium of Energy Efficiency Policies of APEC Economies on the APERC website in April 2010 covering the year 2009.

Since its inauguration, APERC has published the 2010, 2011 and 2012 Compendia of Energy Efficiency Policies of APEC Economies on the APERC website.

MILESTONE

APERC will request EWG members to provide APERC with updated relevant information for the 2013 version soon.

D. COOPERATIVE ENERGY EFFICIENCY DESIGN FOR SUSTAINABILITY (CEEDS)

BACKGROUND

At the Eighth Meeting of APEC Energy Ministers in Darwin, Australia in May 2007, APEC Energy Ministers encouraged APEC economies to individually set goals and formulate action plans for improving energy efficiency on an overall and/or sector basis. Ministers also directed the EWG to compile best practices that can be used to help formulate and track progress towards such voluntary goals and action plans.

At the EWG 37 meeting in Chile, April 2009, the CEEDS project was proposed by Japan and endorsed by EWG members.

While PREE considers the whole range of energy efficiency policies and measures for one economy at a time, CEEDS considers specific high performance energy efficiency policies and measures for several economies in one sector at a time. Both PREE and CEEDS are designed to be multi-year activities, with PREE examining a continuing sequence of volunteer APEC economies, while CEEDS focuses on a continuing sequence of sectors.

OBJECTIVES

APEC CEEDS aims at promoting “high-performance” energy efficiency policy measures in the APEC region.

The key objectives are:

- to identify and share information on “high-performance” energy efficiency policy measures in a selected sector,
- to estimate the energy saving potential of the “high-performance” energy efficiency measures in a selected sector in participating APEC economies,
- to assist participating economies in designing and implementing “high-performance” energy efficiency policy measures in a specified sector,

In order to achieve the above objectives, two activities are undertaken, namely;

- 1) Analysis on energy saving potential in participating economies if high performance measures were implemented in the related sectors;
- 2) A set of two workshops organized with the support of host economies, for the purpose of assisting participating economies who wish to design and implement measures for achieving energy efficiency improvements in the selected sectors.

As a workshop organizer, APERC is responsible for selecting measures to be discussed based on the interests in various APEC economies, arranging the workshop program, inviting APEC delegates to participate, and producing a summary report with experts’ suggestions on how measures might be implemented effectively in the participating economies.

APERC will also carry out a study on energy saving potentials for a selected sector in participating economies, which will be presented at the workshop.

PROGRESS

<CEEDS Phase 1>

The 1st CEEDS Phase 1 Workshop, hosted by Chinese Taipei, was held on 19-21 October 2009, in which delegates from six economies, Chile, China, Malaysia, The Philippines, Thailand and Viet Nam, participated. At the workshop, delegates from participating economies worked together with experts (from ASE, CLASP, IEEJ and LBNL) and APERC researchers to develop proposals on “Next Steps” for advancing “Appliance Energy Efficiency Standards and Labelling” programs in their economies.

The 2nd CEEDS Phase 1 Workshop, hosted by Japan, was held on 1 and 2 March 2010. At the workshop, the refined proposals for “Next Steps”, which had undergone consultation with the delegates’ colleagues in their home economy, were presented by the delegates.

<CEEDS Phase 2>

The 1st CEEDS Phase 2 Workshop, hosted by Thailand, was held on 8-10 September 2010, in which delegates from 5 economies, China, Indonesia, Malaysia, Mexico and Viet Nam, participated. At the workshop, delegates from participating economies worked together with experts and APERC researchers to develop proposals on “Next Steps” for advancing “Building Energy Codes and Labelling” programs in their economies.

The 2nd CEEDS Phase 2 Workshop, hosted by Hong Kong, China was held on 26-28 January 2011. At the workshop, the refined proposals for “Next Steps”, which had undergone consultation with the delegates’ colleagues in their home economy, were presented by the delegates.

<CEEDS Phase 3>

The 1st CEEDS Phase 3 Workshop, hosted by the United States was held on 14-16 September 2011, in which delegates from 5 economies, China, Mexico, the Philippines, Thailand and Viet Nam, participated. At the workshop, delegates from participating economies worked together with experts and APERC researchers to develop proposals on “Next Steps” for advancing “Energy Efficient Urban Passenger Transportation” programs in their economies.

The 2nd CEEDS Phase 3 Workshop, hosted by Singapore was held on 17-19 January 2012, in which delegates from 5 economies, China, Indonesia, the Philippines, Thailand and Viet Nam, participated. At the workshop, refined proposals for “Next Steps”, which had undergone consultation with the delegates’ colleagues in their home economy, were presented by the delegates.

The Summary Report on CEEDS Phase 3 has been published on APERC website.

<CEEDS Phase 4>

The 1st workshop of CEEDS Phase 4, hosted by Thailand was held on 21-23 January 2013, in which delegates from 4 economies, Chile, China, Malaysia and Thailand, participated. At the workshop, delegates from participating economies worked together with experts to develop proposals on “Next Steps” for promoting Energy Service Companies (ESCOs) in their economies.

The 2nd CEEDS Phase 4 Workshop, hosted by Chinese Taipei was held on 26-28 March 2013, in which delegates from only 2 economies, Malaysia and Thailand, participated. At the workshop, refined proposals for “Next Steps”, which had undergone consultation with the delegates’ colleagues in their home economy, were presented by the delegates.

The Summary Report on CEEDS Phase 4 has been published on APERC website.

E. PEER REVIEW ON LOW-CARBON ENERGY POLICIES (PRLCE)

BACKGROUND

In their Fukui Declaration in June 2010 on “Low-Carbon Paths to Energy Security: Cooperative Energy Solutions for a Sustainable APEC”, the APEC Energy Ministers instructed the EWG to “explore mechanisms to encourage economies to set individual goals and action plans for introducing low-emission power sources, building upon the success of the PREE, with assistance from APERC and relevant technology expert groups”

Modelled on the successful Peer Review of Energy Efficiency (PREE), PRLCE is planned to assist volunteer economies in developing policies that support energy security and environmental protection through promoting low-carbon energy supply (e.g. renewable energies).

PROGRESS

Guidelines for PRLCE were endorsed by EWG members in August 2011.

The first PRLCE, with a focus on renewable energy, was held in Thailand on 21-25 May 2012. The peer review was conducted by a team of 9 experts (from China, Japan, Malaysia, Chinese Taipei, U.S., Viet Nam, IRENA and APERC). The Draft Review Report of PRLCE in Thailand was discussed and endorsed by EWG members at the EWG 44 meeting.

The second PRLCE, with focus on the National Renewable Energy Program (including the Feed-in Tariff (FIT) system for renewable energy) was held in the Philippines on 19-23 November 2012. The peer review was conducted by a team of nine experts (from China, Japan, Malaysia, New Zealand, Thailand, IRENA and APERC). The Draft Review Report of PRLCE for the Philippines will be discussed and endorsed by EWG members at the EWG 46 meeting.

The third PRLCE, with focus on Renewable Energy was held in Indonesia on 13-17 May 2013. The peer review was conducted by a team of eight experts (from China, Japan, Malaysia, Thailand, USA and APERC). The Draft Review Report of PRLCE for Indonesia will be discussed and endorsed by EWG members at the EWG 46 meeting.

MILESTONE

The fourth PRLCE for Malaysia will be carried out in 9 -13 December 2013.

F. LOW CARBON MODEL TOWN (LCMT) PROJECT

BACKGROUND

This project directly responds to the declaration at the 9th APEC Energy Ministers Meeting, held in Fukui, Japan on 19 June 2010.

Ministers discussed low carbon paths to energy security, which provide cooperative energy solutions for a sustainable APEC as well as economic growth. They noted that the introduction of low-carbon technologies in city planning to boost energy efficiency and reduce fossil energy use is vital to manage rapidly growing energy consumption in the urban areas of APEC.

In this context, APEC Energy Ministers agreed to launch an “APEC Low-Carbon Model Town (LCMT) Project” to present successful models for coordinated usage of advanced low-carbon technologies. This project is considered as one of the priority projects for APEC.

OBJECTIVE

The key objectives of LCMT are:

- (1) To develop the “Concept of the Low-Carbon Town”, which is intended to be a guidebook to the principles and implementation of low-carbon urban design,
- (2) To assist in the implementation of the concepts in selected Low Carbon Model Towns by providing feasibility studies and policy reviews of these urban development projects,

(3) To share the best practices and real-world experiences with low-carbon urban design with planners and policymakers throughout the APEC region.

PROGRESS

<LCMT Phase1: Tianjin, China>

Tianjin, China was selected as the case study for the LCMT Phase 1 Project. The feasibility study was conducted and completed by a private consulting company in November 2011.

“The Concept of Low Carbon Town in the APEC Region” was completed by the Low Carbon Model Town Task Force in October 2011.

The policy review for Tianjin, China was carried out on 30 August-1 September 2011.

<LCMT Phase2: Samui Island, Thailand>

Samui Island, Thailand, was selected as the case for the LCMT Phase 2 Project.

The refinement of “The Concept of Low Carbon Town” has been completed by Study Group-A assisted by APERC.

The feasibility study was carried out by qualified urban design consultants and a progress report was made at the LCMT Task Force meeting held in conjunction with the EWG 44 meeting.

The policy review for Samui Island, Thailand has been conducted by Study Group-B assisted by APERC on 24-28 September 2102.

<LCMT Phase3: Da Nang, Viet Nam>

Da Nang, Viet Nam, was selected as the case for the LCMT Phase 3 Project.

The refinement of “The Concept of Low Carbon Town” has been under consideration by Study Group-A assisted by APERC.

The feasibility study was carried out by qualified urban design consultants.

A policy review will be conducted by Study Group-B assisted by APERC on 4-6 December 2013.

The project will be completed with all three elements in due course.

MILESTONE

<LCMT Phase4: San Borja, Peru>

San Borja, Peru, will be selected as the case for the LCMT Phase 4 Project at the EWG 46 meeting.

The schedule for Phase 4 will be discussed at the LCMT Task Force meeting to be held in conjunction with the EWG 47 meeting.

G. OIL & GAS SECURITY EXERCISES (OGSE)

BACKGROUND

APEC Energy Ministers, met in St. Petersburg, Russia on 24-25 June 2012, and encouraged the APEC Energy Working Group (EWG) and Asia Pacific Energy Research Centre (APERC) to work on activities to improve the response to oil and gas emergency situations, including emergency response workshops and exercises. EWG and APERC are expected to perform these activities in collaboration with the International Energy Agency (IEA) and the Association of Southeast Asian Nations (ASEAN).

This instruction by energy ministers was confirmed at the highest level: APEC leaders agreed to promote activities to improve the response to oil and gas emergency situations in the APEC region at Vladivostok, Russia on 8-9 September 2012.

PROGRESS

The first Security Forum, a kick-off meeting, was held on 18-19 April 2013 in Tokyo.

Scenarios for the security exercises were developed by APERC with the cooperation of outside experts.

The first exercise was a joint exercise by Southeast Asian APEC economies in 17-19 September 2013, held in Bangkok, Thailand.

The second exercise was carried out for Indonesia in 22-24 October 2013 in Jakarta.

The reports of two exercises are being drafted by APERC.

MILESTONE

After completing the first Security Forum and two exercises in Bangkok, Thailand and Jakarta, Indonesia, APERC will host the second Security Forum, a wrap-up meeting, in Spring 2014 in Tokyo.

II FUTURE WORKPLAN

Future work plans of APERC were originally envisioned in “APERC Mid-Term Strategic Plan”: the first Strategic Plan was developed in 2003 for the 5 year period from 2004 to 2008 and the second in 2008 for the 5 year period from 2009 to 2013.

However, due to rapidly changing energy situation in the APEC region and APERC’s newly added role in cooperative activities, APERC’s work plan for the coming year has been presented biannually in the Part II of APERC President’s Report, under the title of “New Workplan”, which is mostly different from the earlier 2009-2013 “Mid-Term Strategic Plan”.

With the expiration of the 2009-2013 “Mid-Term Strategic Plan”, from now on APERC would like to present its work plan for the coming years biannually in Part II of the APERC President’s Report under the new title “Future Workplan”.

APERC’s Future Workplan is designed to assist EWG in responding to the instructions by APEC Energy Ministers for coming years as described in the preceding Part I.

APERC conducts research activities, particularly producing the *APEC Energy Demand and Supply Outlook*. In addition, APERC, as the designated executants, assists project overseers by carrying out APEC projects, on the condition that budget from the APEC fund is approved for those projects by the APEC BMC.

1. APEC Energy Demand and Supply Outlook 6th Edition

(a) APERC is starting work on the *APEC Energy Demand and Supply Outlook 6th Edition*. The *Outlook 6th Edition* is targeted for completion in mid-2015.

(b) APERC will continue research activities appropriate for the preparation of the *Outlook 6th Edition*.

Work is underway on new models for macroeconomic projections, electricity supply, light vehicle transportation energy demand, and the industrial energy demand.

Topical studies are underway on barriers to shale gas development, barriers to geothermal energy development, barriers to combined heat and power development, benefits of electricity interconnection in Northeast Asia, and space cooling as a development goal.

Reports on several topics being investigated for the *Outlook 6th Edition* will be published during 2014 and onwards.

(c) In particular, as natural gas will continue to increase its importance in the energy mix due to the availability of unconventional gas resources and its relative cleanliness compared to other fossil fuels, production and trade of natural gas will be one of major research themes to be pursued.

In order to gather first-hand information on natural gas, APERC co-hosted the 2nd LNG Producer-Consumer Conference with the Japanese Ministry of Economy, Trade and Industry in September 2013 in Tokyo, as a follow-up to the 1st LNG Producer-Consumer Conference held in September 2012 in Tokyo. APERC will continue similar activities to acquire the latest information.

2. PREE

(a) Given the resource constraints of APERC, it is necessary to reduce the number of peer reviews per year. About half of all APEC economies have already hosted a PREE, so instead of one PREE and one Follow-up PREE (a total of two) in 2012 and 2013, there will be one PREE or one Follow-up PREE (a total of one) after 2014.

3. CEEDS

CEEDS is a very complicated project which involves arranged two workshops in two different economies with the same participating delegates and the same expert speakers for both workshops.

Given the resource constraints of APERC, it is necessary to simplify the scope of the project. There will now be only one workshop (rather than two), open to the all APEC economies, with fewer invited experts.

The topics of this workshop will be selected from the key issues highlighted in the previous PREEs. Future workshops will be integrated into PREE (i.e. no longer an independent project) and be renamed “Energy Efficiency Policy Workshops”. The Workshop may be held in conjunction with one of the two bi-annual meetings of EGEE&C (Expert Group on Energy Efficiency and Conservation).

4. PRLCE

Given the resource constraints that APERC faces, and recognizing the smaller number of potential host economies (compared to PREE), it is necessary to reduce the number of PRLCE peer reviews per year. Instead of the two PRLCEs per year in 2012 and 2013, there be one PRLCE per year after 2014.

5. Low Carbon Model Town (LCMT) Project

APERC will assist Study Group A and Study Group B in revising the “Concept of the Low-Carbon Town” and in drafting “Policy Reviews” in the next Phase 4 of the LCMT project in San Borja, Peru until December 2014.

6. Oil & Gas Security Exercises (OGSE)

The results of two Security Fora in Tokyo and two Exercises in Bangkok and Jakarta will be compiled into a draft final report. The report will be discussed by EWG and submitted to the eleventh APEC Energy Ministers’ Meeting (EMM) to be held in September 2014.

III APERC RESEARCHERS

APERC researchers are generally drawn from energy research organisations, both government and non-government, in APEC member economies. The minimum term of researchers supported by APERC's budget is one year, which may be extended subject to consultations with the relevant organisations in member economies.

APERC would like to invite all economies to nominate researchers to serve at APERC. In principle, APERC accepts one researcher from each APEC member economy.

APERC offers living expenses, housing in Tokyo, transportation, moving expenses and health insurance to the researchers.

As of 15th November 2013, APERC had a total of 15 researchers, of which 11 are from overseas.

Table 1: APERC Researchers

Name
Takato Ojimi (President)
Ralph D. Samuelson (Vice President)
Kazutomo Irie (General Manager)
Hooman Peimani
Goichi Komori
Elvira T. Gelindon
Yeong-Chuan Lin
Dmitry Sokolov
Juan Roberto Lozano Maya
Aishah Binti Mohd. Isa
Luke H. Leaver
Chrisnawan Anditya
Du Bing
Naomi Wynn
Takashi Otsuki

IV REVENUE AND EXPENSES

Since its inception, APERC's budget has been provided by the Japanese government and, in fiscal 2004, 2005 and 2006, also by the Australian government.

This budget has been used to facilitate research activities, cooperative efforts, know-how transfer programmes to the member governments, and the energy data network service.

The table below is a summary of annual financial statements since APERC was established in July 1996.

Table 2: APERC Revenues and Expenses

Unit: million yen

Fiscal Year	1996 9mns	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 (Plan)
Revenue from:																		
Japanese Government	374	626	681	729	619	634	594	547	525	528	498	446	447	418	409	425	494	566
Australian Government									8	8	8							
Total of Revenue	374	626	681	729	619	634	594	547	533	536	506	446	447	418	409	425	494	566
Expenses:																		
Energy Efficiency / APEC Energy Demand & Supply Outlook / Related Research Programmes	227	443	494	550	455	469	434	390	379	377	377	338	339	318	315	308	325	350
Oil & Gas Security																		121
Know-How Transfer Programmes	54	65	65	58	58	60	53	59	53	46	41	31	28	20	17	14	24	23
Energy Data Network Service	93	118	122	121	106	105	107	98	101	113	88	77	79	80	77	80	62	72
Total of Expenses	374	626	681	729	619	634	594	547	533	536	506	446	447	418	409	402	411	566